

To Supplement • *Commercial Software Price and Employment Trend*

### ***Wage Changes***

Comparison of Correlation Coefficients		
Employment Category	Wages vs. Employment	Wages vs. CSPI
Programmers	-0.86	-0.92
Applications	.944003589	-0.919752276
Systems	.977711821	-.935267286

From the data, it appears that the wages of programmers are negatively correlated with both their employment figures and the CSPI, while the wages for the software engineering categories are negatively correlated with the CSPI and positively with the number of people employed. It seems reasonable to conclude that these changes have occurred by chance, as higher wages would most likely *increase* the budget of software programs, not cut them down. *The wages of I.T. workers in the U.S. can thus be eliminated as a possible common-cause factor.*

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### ***Open Source Software Adoption***

Comparison of Correlation Coefficients		
	<i>Private Sector Open Source Software Use, 2005 - 2007</i>	<i>Public Sector Open Source Software Use, 2005 - 2007</i>
CSPI	-0.97692	0.999969
Computer Programmers	0.786938	-0.90397
Computer Software Engineers, Applications	0.990897	-0.93654
Computer Software Engineers, Systems Software	0.963338	-0.88009

Unfortunately, Statistics Canada's survey of open-source software use was conducted for too short a period of time to determine if the above correlation statistics are accurate. Moreover, open-source software has only been used by mainstream business for a relatively short amount of time, and it is currently unclear what effect widespread use will have on the price of traditional boxed software and on employment for programmers. However, Canadian use of open-source software is not likely to have as much of an effect on American employment as American use is. Canada is simply not as large a market. More research is needed to determine the long-term effects of open-source software adoption on the viability of the commercial software industry. *It is unclear whether or not the use of open source software is a common-cause factor.*

Open source software is defined as software of any sort for which the source code that was used to create it is openly published in the public domain, so (experienced) users can read and understand it, and if desired, modify it to add to or change the program's functionality. Traditionally, software companies hide the source code from users to prevent program theft and plagiarism.

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### ***Computer Science Degrees Conferred***

Comparison of Correlation Coefficients		
	<i>Bachelor's Degrees</i>	<i>Master's Degrees</i>
CSPI	-0.01853	-0.19582
Computer Programmers	-0.33682	-0.46681
Computer Software Engineers, Applications	-0.16991	0.015566
Computer Software Engineers, Systems Software	-0.17069	0.098424

Unpredictably, there is no discernible linear correlation of any sort between the number of Bachelor's and Master's degrees in computer and information sciences conferred in the U.S. and the number of software developers employed. Since most positions, according to the Bureau of Labor Statistics' own statements, require at least a Bachelor's degree to be properly qualified for work, this is extremely counter-intuitive. However, it clearly eliminates the number of pre-doctoral degrees in the computer science field as a possible common-cause factor affecting both the CSPI and the number of software developers employed in the U.S. Yet the number of Doctoral degrees is strongly correlated with the CSPI and the number of software engineers employed. It is logical that Ph. D.'s, who often do groundbreaking research as part of their education, should lead to improvements in software development, but the low number of Ph. D. degrees granted cannot possibly account for the huge numbers of software engineers that have joined the workforce in the last decade.